

USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

Maryland Core Learning Goals – Biology

Lesson	Goal	Indicator
3	1.1.1	Recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.
3	1.1.2	Modify or affirm scientific ideas according to accumulated evidence.
2, 3	1.2.1	Identify meaningful, answerable scientific questions.
2, 3	1.2.2	Pose meaningful, answerable scientific questions.
3	1.2.3	Formulate a working hypothesis.
3	1.2.4	Test a working hypothesis.
1, 2, 3	1.2.5	Select appropriate instruments and materials to conduct an investigation.
2, 3	1.2.6	Identify appropriate methods for conducting an investigation (independent and dependent variables, proper controls, repeat trials, appropriate sample size, etc.).
2, 3	1.2.7	Use relationships discovered in the lab to explain phenomena observed outside the laboratory.
1, 2, 3	1.4.1	Organize data appropriately using techniques such as tables, graphs, and webs (for graphs: axes labeled with appropriate quantities, appropriate units on axes, axes labeled with appropriate intervals, independent and dependent variables on correct axes, appropriate title).
1, 2, 3	1.4.2	Analyze data to make predictions, decisions, or draw conclusions.
1, 2, 3	1.4.3	Use experimental data from various investigators to validate results.
2, 3	1.4.6	Describe trends revealed by data.
1, 2, 3	1.4.8	Use models and computer simulations to extend his/her understanding of scientific concepts.
3	1.4.9	Use analyzed data to confirm, modify, or reject a hypothesis.
1, 2, 3	1.5.1	Demonstrate the ability to summarize data (measurements/observations).
1, 2, 3	1.5.2	Explain scientific concepts and processes through drawing, writing, and/or oral communication.
1, 2, 3	1.5.4	Use tables, graphs, and displays to support arguments and claims in both written and oral communication.
1, 2, 3	1.5.8	Describe similarities and differences when explaining concepts and/or principles.

MARYLAND ALIGNMENT FOR NIH SUPPLEMENT USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

1, 2, 3	1.5.9	Communicate conclusions derived through a synthesis of ideas.
1, 2	1.6.1	Use ratio and proportion in appropriate situations to solve problems.
1, 2	1.6.3	Express and/or compare small and large quantities using scientific notation and relative order of magnitude.
1	1.6.4	Manipulate quantities and/or numerical values in algebraic equations.
1, 2	1.6.5	Judge the reasonableness of an answer.
All lessons	1.7.2	Identify and evaluate the impact of scientific ideas and/or advancements in technology on society.
1, 2	1.7.4	Recognize mathematics as an integral part of the scientific process.
All lessons	1.7.6	Explain how development of scientific knowledge leads to the creation of new technology and how technological advances allow for additional scientific accomplishments.

Maryland Core Learning Goals – Algebra/Data Analysis and Probability

Lesson	Goal	Indicator
1	1.1.1	Recognize, describe, and/or extend patterns and functional relationships that are expressed numerically, algebraically, and/or geometrically.
1	1.1.2	Represent patterns and/or functional relationships in a table, as a graph, and/or by mathematical expression.
1	1.1.3	Apply addition, subtraction, multiplication, and/or division of algebraic expressions to mathematical and real-world problems.
1	1.2.5	Apply formulas and/or use matrices (arrays of numbers) to solve real-world problems.
1	3.2.1	Make informed decisions and predictions based upon the results of simulations and data from research.

Maryland Core Learning Goals – English

Lesson	Goal	Indicator
3, 4	1.1.1	Use pre-reading strategies appropriate to both the text and purpose for reading by surveying the text, accessing prior knowledge, formulating questions, setting purpose(s), and making predictions.
3, 4	1.1.2	Use during-reading strategies appropriate to both the text and purpose for reading by visualizing, making connections, and using fix-up strategies such as re-reading, questioning, and summarizing.
3, 4	1.1.3	Use after-reading strategies appropriate to both the text and purpose for reading by summarizing, comparing, contrasting, synthesizing, drawing conclusions, and validating the purpose for reading.

MARYLAND ALIGNMENT FOR NIH SUPPLEMENT USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

3, 4	2.1.1	Compose to inform by using appropriate types of prose.
3, 4	2.1.2	Compose to describe, using prose and/or poetic forms.
3, 4	2.1.3	Compose to express personal ideas, using prose and/or poetic forms.
3, 4	2.2.2	Select and organize ideas for specific audiences and purposes.
3, 4	2.2.6	Prepare a final product for presentation to an audience.
3, 4	2.3.2	Use various information retrieval sources (traditional and electronic) to obtain information on a self-selected and/or given topic. Electronic sources include automated catalogs, CD ROM products, and on-line services like Internet, World Wide Web, and others.
1, 3, 4	3.2.1	Choose a level of language, formal to informal, appropriate for a specific audience, situation, or purpose.
1, 3, 4	4.1.1	State and explain a personal response to a given text.
Maryland Core Learning Goals – Health		
High school health core learning goals are not published at this time. 05/01/2006		